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HIGHLIGHTS/SUMMER 1976

TSP AS A GROUND-BEEF EXTENDER

ORGANIC FOODS

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Consumer and Food Economics Institute
Agricultural Research Service
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FAMILY ECONOMICS REVIEW is a quarterly report on research of the Consumer and Food Economics Institute and on information from other sources relating to economic aspects of family living. It is prepared primarily for home economics agents and home economics specialists of the Cooperative Extension Service.

Authors are on the staff of the Consumer and Food Economics Institute unless otherwise noted.

Editor: Katherine S. Tippet

Editorial Assistant: Sherry Lowe

Consumer and Food Economics Institute
Agricultural Research Service
U.S. Department of Agriculture
Federal Building
Hyattsville, Md. 20782

TEXTURED SOY PROTEIN AS A GROUND BEEF EXTENDER

by Dianne Odland and Carolyn Adams

In times of high food prices, budget-minded consumers are anxious to find ways to stretch their food dollar. The use of textured soy protein (TSP) to extend the yield of main dish items made with ground beef is one way to save money.

To determine comparative cost and quality of main dish items made with TSP-extended ground beef or all ground beef, a study was conducted in the foods laboratory of the Consumer and Food Economics Institute. Three main dish items were tested—ground beef patties, meatloaf, and chili con carne. Each item was made with all ground beef (no TSP added), with ground beef premixed with rehydrated unseasoned TSP at the supermarket, and with ground beef mixed with rehydrated unseasoned TSP¹ in the laboratory. Also, the patties were made with a seasoned TSP product² that is sold specifically for use in ground beef patties, and the meatloaf was made with seasoned TSP product made specifically for meatloaf. Both seasoned products were rehydrated and mixed with ground beef in the laboratory.

Main dish items made with all ground beef, the supermarket TSP-ground beef blend, or the laboratory blend using unseasoned TSP were prepared according to basic home recipes. An equal weight of TSP-beef mixture was substituted for all ground beef. The patties and meatloaf made with seasoned TSP were prepared according to directions given on the seasoned TSP product label.

Unseasoned and seasoned TSP products were purchased in the dehydrated form and were rehydrated in the laboratory before mixing with ground beef. Following package directions, unseasoned TSP (1.65 ounces) was mixed with 2/3 cup water, allowed to stand 5

minutes, stirred, and mixed with 1 pound ground beef to yield about 1-1/2 pounds rehydrated TSP-beef mixture. One packet of TSP with seasonings for either ground beef patties or meatloaf (4 ounces TSP and seasonings) was added to 1-1/2 cups water, stirred, allowed to stand 15 minutes, and combined with 1 pound ground beef to give a mixture weighing about 2 pounds. This mixture was used to make patties and meatloaf according to directions given on the seasoned TSP product label. TSP fortified with vitamins and minerals made up one-half the ingredients in the seasoned TSP product packet, and items such as wheat crumbs, dried onions, nonfat dry milk, salt, pepper, and other spices made up the other half.

Regular ground beef was used in the all-beef main dish items and in combination with both forms of TSP rehydrated in the laboratory. Ground beef and TSP-ground beef blend were obtained from the same supermarket to provide a similar basis for comparison.

Finished products were weighed and evaluated for appearance, texture, flavor, and overall quality on a 5-point scale ranging from "very good" to "very poor" by a trained taste panel of six members.

Prices of required ingredients were obtained in three supermarkets in the Washington, D.C., metropolitan area in April 1976. The cost of each main dish item was calculated by totaling the average price for all ingredients. Cost per serving was determined by dividing total cost by the number of servings for each main dish item.

Cost Comparisons

Cooked patties, meatloaf, and chili containing TSP had a higher yield and a lower cost per serving than the corresponding items made with all ground beef (see table). All three main dish items cost slightly less when made with supermarket TSP-ground beef blend than with unseasoned TSP rehydrated and mixed with ground beef in the laboratory.

On a per serving basis, patties made with seasoned TSP cost less than patties made with the

¹At the time this article went to press, we discovered that the unseasoned TSP product tested in this study is no longer being manufactured.

²At the time this study was initiated, only one brand of seasoned TSP was available in area supermarkets. Since then another brand has been introduced. This brand has not been tested in our laboratory.

Cost of main dish items made with all beef or a blend of textured
soy protein and ground beef ¹

Food tested	Weight of cooked main dish item ²	Number of servings ³	Total cost	Cost per serving
	<i>Ounces</i>		<i>- - - Dollars - - -</i>	
<u>GROUND BEEF PATTIES</u>				
All ground beef (no TSP) ..	16.00	6.0	1.23	0.21
Supermarket TSP blend	18.55	6.9	1.04	.15
Laboratory TSP blend:				
Unseasoned	17.50	6.5	1.06	.16
Seasoned	25.80	9.6	1.24	.13
<u>MEATLOAF</u>				
All ground beef (no TSP) ..	24.06	6.0	1.44	.24
Supermarket TSP blend	28.32	7.1	1.25	.18
Laboratory TSP blend:				
Unseasoned	27.25	6.8	1.27	.19
Seasoned	25.96	6.5	1.21	.19
<u>CHILI CON CARNE</u>				
All ground beef (no TSP) ..	76.33	9.0	3.13	.35
Supermarket TSP blend	85.91	10.1	2.94	.29
Laboratory TSP blend:				
Unseasoned	82.38	9.7	2.96	.31

¹Prices from 3 Washington, D.C., area supermarkets, April 1976. Textured soy protein products were not available in all 3 stores.

²Means of 3 tests for ground beef patties and 2 tests each for meatloaf and chili con carne.

³Weight of cooked main dish item divided by weight per serving of the all-beef main dish item. A single serving was defined as 1 ground beef patty, 2.7 oz; 1 slice meatloaf, 4.0 oz; and 1 cup chili con carne, 8.5 oz.

Note: At the time this article went to press, we discovered that the unseasoned TSP product tested in this study is no longer being manufactured.

Also, at the time this study was initiated only one brand of seasoned TSP was available in area supermarkets. Since then another brand has been introduced. This brand has not been tested in our laboratory.

supermarket TSP-ground beef blend or unseasoned TSP. The cost of meatloaf made with seasoned TSP was the same as meatloaf made with unseasoned TSP.

One serving of ground beef patties costs 8 cents less, and one serving of meatloaf or chili, 6 cents less when made with the least expensive form of TSP than when made with all ground beef. Thus, a significant saving may be realized by using TSP extenders for these main dish items.

Quality Comparisons

Each main dish item received a score of "good" in all quality factors except patties made with the supermarket TSP-ground beef blend, which received a rating of "fair" in flavor, and patties made with seasoned TSP, which received a rating of "fair" in flavor and overall quality.

Judges comments indicated that *compared with the all-beef main dish item:*

- Patties and meatloaf made with the supermarket TSP-ground beef blend were grainy or mealy; patties had an off-flavor.
- Patties made with unseasoned TSP had an off-flavor; meatloaf had a weak meat flavor.
- Patties and meatloaf made with seasoned TSP were soft, crumbly, too moist, and off-flavored.
- Chili con carne made with either the supermarket TSP-ground beef blend or unseasoned TSP was similar in all quality factors.

These results indicate that the flavor of TSP may be masked by strong-flavored ingredients such as onions, tomatoes, and chili powder or by the diluting effect of other ingredients. For example, in chili, the combined weight of ground beef plus rehydrated TSP accounted for only 25 percent of the total weight of all ingredients; in meatloaf, about 68 percent; and in patties, nearly 100 percent, as no other ingredients were added except spices.

Deciding Which Product to Use

Differences in both cost and eating quality between main dish items made with all ground beef and those made with TSP extenders are important factors in deciding which product to use. Although each main dish item made with TSP was found to be less expensive than the corresponding item prepared from all ground beef according to a home recipe, some had a less desirable flavor or texture.

Grocery purchased TSP-ground beef blend or unseasoned TSP that is mixed with ground beef at home are advantageous because they can be substituted for all ground beef in your own recipe for meat sauce, lasagna, tacos, sloppy joe sauce, or any other main dish item in which ground beef is an ingredient. On the other hand, the seasoned TSP product tested in this study is convenient to use because all seasonings required for preparation of a main dish item are included in the packet. Seasoned TSP and 1 pound ground beef are the only items which must be purchased.

COSTS OF MILK AND MILK PRODUCTS AS SOURCES OF CALCIUM—AN UPDATE

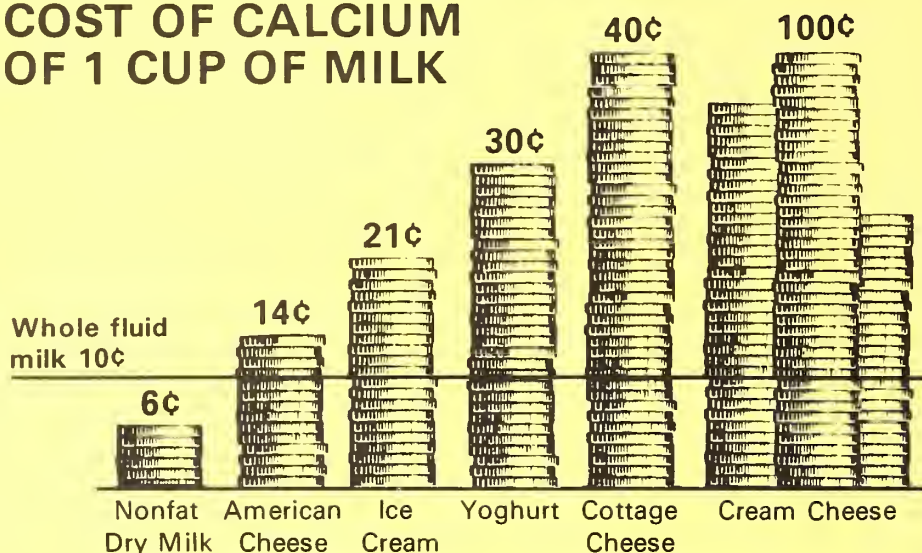
by Pamela Isom

Milk and foods made from milk are major sources of the mineral calcium in the diet. However, the cost of milk and milk products, such as ice cream and cheeses, as sources of calcium varies greatly. Careful selection can result in substantial savings.

Milk products generally are more expensive as sources of calcium than milk. In Washington,

D.C., in April 1976, equal amounts of calcium from process American cheese cost one-half more and ice cream twice as much as from whole milk (see chart). As sources of calcium, table cream, natural blue cheese, and cream cheese cost from 6 to 10 times as much as milk (see table). Some forms of milk (that provide about the same amount of calcium) are more

COST OF CALCIUM OF 1 CUP OF MILK



*PRICES FROM WASHINGTON D.C. SUPERMARKETS, APRIL 1976.

USDA

NEG. ARS 6030-76 (6)

economical than others: A cup of milk made from nonfat dry milk cost 6 cents; fresh skim milk, 9 cents; and reconstituted evaporated milk and whole milk, 10 cents.

Some changes in cost relationships of milk and certain milk products have occurred in the last 4 years.¹ For example, in 1972 in Washington, D.C., a cup of reconstituted evaporated milk cost about two-thirds as much as a cup of whole fluid milk; now it costs as much as whole milk. In 1972 ice milk cost only two-thirds as much as ice cream; now it costs almost as much. Of the milk and milk products priced, only plain yoghurt was no higher in price in 1976 than in 1972. Even so, yoghurt continues to be an expensive source of calcium compared with milk, ice cream, and most cheeses.

Costs shown in the table should not be used to illustrate cost relationships in the country as a whole. Prices of fresh milk in Washington, D.C., used in preparing the table differ from those in other areas. For example, in spring of 1976 the price of a half-gallon of fresh whole milk was 85 cents in Washington, D.C.; 69 cents in Los Angeles, Calif.; and 98 cents in Atlanta, Ga.² To use local prices to figure costs of milk and calcium equivalent portions of milk products, insert in column 5 the local price for the market units in column 2. Then, divide the prices in column 5 by the number of portions in column 4. For instance, suppose the cost of a half-gallon of ice milk was \$1.18. Write 118 in column 5 and divide by the 5.3 portions listed in column 4. The result is 22 cents—the cost for calcium equivalent portion.

¹ See *Family Economics Review*, December 1972, pp. 12-15.

² Prices collected by the Bureau of Labor Statistics, U.S. Department of Labor.

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¹Prices from 3 Washington, D.C., supermarkets, April 1976--store brand or least costly brand.

Agriculture Handbook No. 456 "Nutritive Value of American Foods in Common Units" by Catherine F. Adams was published in December 1975. This publication provides values for calories and nutrients supplied by various household measures and market units of foods. These values have been prepared to serve the needs of the growing number of research groups who conduct dietary surveys and nutritional status studies on individuals and household groups, as well as the needs of other professional and technical personnel who plan or evaluate diets and food supplies, including personnel in food industries and health-related professions.

The handbook includes data on approximately 1,500 foods in the form of menu items, snacks, and market products; some as ready-to-eat foods, some that require preparation in varying degrees, and some that are used as ingredients in preparing other products. Although this information is primarily for use with retail supplies and foods used or prepared in the home, some of it applies to foods used in

institutional and other large-scale operations.

The nutritive values on which data are provided include water, food energy, protein, fat, carbohydrate, five mineral elements (calcium, phosphorus, iron, sodium, and potassium), five vitamins (vitamin A, thiamin, riboflavin, niacin, and ascorbic acid), total saturated fatty acids, and two unsaturated fatty acids (oleic acid and linoleic acid).

Development of suitable data on weight-volume relationships for the measures of the food items has been an essential part of the preparation of the information presented. Procedures and problems in arriving at the weight-volume relationships are discussed.

To obtain copies of this handbook, send check or money order (no cash) for \$5.15 per copy to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Please include your ZIP code. For information on machine-readable tapes of the data write: Consumer and Food Economics Institute, Survey Statistics Group, ARS, USDA, Hyattsville, Md. 20782.

ORGANIC FOODS—AN UPDATE

by Cynthia Cromwell

In 1972, USDA's study on the cost of organic foods indicated that families substituting organic foods for regular foods are likely to pay more for a similar diet, but might reduce the amount paid for organic foods slightly by comparison shopping.¹ A study in February 1976 found that organic foods continue to cost more—1-1/3 to 1-2/3 times as much as regular foods. Consumers continue to buy the more expensive organic foods even though they are

not necessarily more nutritious, and the special conditions required for the growth and processing of such foods are not regulated or assured.

To illustrate cost differences, the USDA compared prices of 47 foods advertised and labeled as organic (organic foods) in two natural food stores and similar foods produced by regular methods (regular foods) in a supermarket in the Washington, D.C., area in February 1976 (see table). A group of these foods made up of a unit (pound or quart) of each of 33 organic foods available in both natural food stores cost \$28 at a large natural food store (store No. 1) and \$24.02 at a cooperatively

¹ Cromwell, C., Organic foods, *Family Economics Review* pp. 3-5, September 1975.

owned natural food store (store No. 2).² A similar basket of regular foods cost considerably less—\$17.49—at the supermarket. In each store, the brand or package with the lowest cost per unit was priced.

The difference in cost between organic and regular foods was greater for processed than for unprocessed foods. The cost of 10 processed organic foods in the basket, such as canned and dried fruits and vegetables, cereals and bread, and honey, averaged 1-2/3 times as much as their regular counterparts. The 23 unprocessed organic foods in the basket—all fresh fruits and vegetables—averaged slightly less than 1-1/2 times as much as the regular produce. The cost relationships for produce are expected to vary from time to time and place to place because the season and the nearness of the farmer to a market will affect the cost.

While many organic foods cost over twice as much as regular foods, a few organic foods cost less. For example, organic-labeled chicken cost 2-1/3 to 3 times as much as regular chicken; organic onions cost almost 3-1/2 times as much as regular onions; but organic-labeled fresh brussels sprouts cost one-third less than regular brussels sprouts; and organic-labeled wheat cereal (to be cooked) also cost about one-third less than the regular wheat cereal.

Prices of most organic foods in store No. 2 (the cooperatively owned store) were lower than in store No. 1 (the large natural food store). Organic lentils cost about the same in store No. 2, but cost 3-1/3 times as much in store No. 1, as regular lentils from the supermarket. Fresh organic tomatoes cost about 1-1/3 as much in store No. 2, but twice as much in store No. 1, as regular tomatoes.

These price relationships are similar to the results of the 1972 study. In the 1972 and

1976 studies, the difference between the cost of organic and regular foods was greater for processed than unprocessed foods; cost relationships of organic and regular foods varied considerably in the two natural food stores; and the cooperatively owned natural food store generally had lower prices than the larger natural food store. In the previous study, the group of organic foods available in the natural food stores cost 1-1/2 to 2 times as much as similar regular foods from a supermarket. In this study, a similar, but not identical, group of organic foods cost 1-1/3 to 1-2/3 times as much as its regular counterpart.

What is an organic food? There is no legal definition for organic foods. Producers, manufacturers, and retailers, therefore, may use the term loosely in advertising and labeling these foods. Consumers generally expect organic foods to be produced without pesticides and artificial fertilizers and to be free of synthetic additives, preservatives, hormones, and antibiotics.

Contrary to some claims, food labeled organic is not necessarily more nutritious. According to the 1974 YEARBOOK OF AGRICULTURE,³ there is no scientific evidence that plants grown with only organic fertilizers, or meat from animals raised on only organically fertilized feed, have greater nutritive value than regular foods produced by the usual agricultural methods.

The Federal Trade Commission (FTC) began public hearings in July 1976 on food advertising, including organic food claims. At issue is whether there should be a regulation to prohibit terms such as "organic" and "organically grown" in advertising. Some relevant questions to be discussed are: Is there confusion among consumers about the meaning of these terms? Does the use of the terms in advertising a food imply that it is superior nutritionally or in other respects to a similar food not so advertised; and indeed is the "organic" food nutritionally or otherwise superior? Under such regulation, if enacted, label statements such as "no preservatives or synthetic additives" would continue to be allowed if the food does not have such ingredients.

² Store No. 1, a large natural food store in the Washington, D.C., area, sells organic, health, and special diet foods; vitamins; cosmetics; and literature. The variety of foods available in this store was greater than in most other natural food stores in the area but less than in the supermarket. This store sells frozen organic ground meat and poultry.

Store No. 2, a natural—almost completely organic—food store, is owned cooperatively by the workers. Many foods are purchased in bulk. Some are repackaged at the store in smaller containers; some are sold in the customer's own container. There is a large variety of whole grain cereal products, dried fruits, and legumes available.

³ Leverton, R. M. Organic, inorganic: What they mean. 1974 Yearbook of Agriculture, pp. 70-73. U.S. Government Printing Office, Washington, D.C.

Cost of selected foods advertised as "organic" compared with cost of similar foods not labeled "organic" (regular), Washington, D.C., February 1976¹

Foods	Unit	Regular food	Organic as percentage of regular food	
		Supermarket	Store No. 1 ²	Store No. 2 ²
<i>Dollars</i>				
- - - - - Percent - - - - -				
<u>PROCESSED FOODS</u>				
Canned fruits and vegetables, juices and preserves:				
Apple juice	Qt	0.45	198	182
Apple sauce	Lb	.29	276	--
Peach preserves	Lb	.87	151	--
Pickles	Qt	1.00	150	150
Tomatoes	Lb	.23	326	296
Dried fruits and vegetables:				
Lentiles, hulled	Lb	.37	338	100
Raisins	Lb	.78	--	89
Flour, cereals, pastas, and bread:				
Cornmeal, yellow	Lb	.26	154	115
Granola	Lb	.69	--	132
Grits	Lb	.37	214	116
Oats, rolled (not quick-cooking)	Lb	.52	--	56
Wheat cereal	Lb	.49	82	61
Whole wheat bread	Lb	.55	--	144
Whole wheat flour	Lb	.22	205	177
Other:				
Honey	Lb	.94	120	115
Peanut butter	Lb	.79	--	170
Vinegar, cider	Qt	.53	202	306
<u>UNPROCESSED FOODS</u>				
Meat and poultry:				
Ground beef, regular	Lb	.75	313	--
Chicken:				
Fryer, whole	Lb	.65	254	--

Fryer, cut-up	Lb	.69	304	--
Breast with rib	Lb	.89	235	--
Leg	Lb	.79	265	--
Livers	Lb	1.19	176	--
Eggs	Doz	.79	165	--
Fresh fruits and vegetables:				
Apples	Lb	.33	173	142
Grapefruit	Lb	.17	288	124
Oranges	Lb	.18	228	117
Tangerines	Lb	.21	186	143
Broccoli	Lb	.55	125	129
Brussels sprouts	Lb	1.26	66	67
Cabbage, green	Lb	.10	550	430
Cabbage, red	Lb	.33	179	152
Carrots	Lb	.23	183	152
Celery, pascal	Lb	.44	148	109
Cucumbers	Lb	.53	160	160
Garlic	Lb	2.45	90	65
Green beans	Lb	.59	151	180
Greer pepper	Lb	.53	236	200
Greens (collards, kale)	Lb	.39	144	233
Lettuce, head	Lb	.39	164	144
Lettuce, romaine	Lb	.49	131	129
Mushrooms	Lb	.69	326	261
Onions	Lb	.23	343	343
Potatoes, white	Lb	.33	179	142
Spinach	Lb	1.10	95	82
Squash, summer	Lb	.59	169	114
Tomatoes	Lb	.52	208	138

¹If a variety of brands or package sizes were available, the price of the best buy was chosen.

²Store No. 1 is a large natural food store that sells food, vitamins, cosmetics, and literature.

Store No. 2 is a natural--almost completely organic--food store owned cooperatively by the workers. Many foods are purchased in bulk. Some are repackaged at the store in smaller containers; some are sold in the customer's own container.

POPULATION CHARACTERISTICS

Population Growth

The total population of the United States was almost 215 million on January 1, 1976, an increase of four-fifths of 1 percent over a year earlier. The rate of population growth in 1975 was slightly higher than in 1974 but considerably lower than in 1970. About 2.1 children per woman are required for population replacement in the absence of population growth through net immigration. However, both the birth rate (14.9 births per 1,000 population in 1975) and the total fertility rate (1,800 children per 1,000 women in 1975) imply less than two children per woman. By far the strongest preference among wives under 25 is for a two-child family. In 1975 married women under 25 years of age reported that they expect to have an average of 2.2 children in their lifetimes; those 35 to 39 years old expect to have 3.1 children.

Contrary to historic trends, metropolitan areas as a whole are no longer gaining population through migration from nonmetropolitan areas in the United States. Only two of the eight largest metropolitan areas (Washington, D.C., and San Francisco-Oakland-San Jose) grew by as much as 3 percent between 1970 and 1974. The rate of decline in the farm population has diminished from 5 percent per year in the 1960's to 2 percent in the 1970's. Since 1970, the Mountain States have been the fastest growing area of the United States; followed by the South Atlantic States. Changes in the population of Florida account for one-quarter of the South's population growth since 1970 and one-half of its net immigration.

The black population numbered approximately 24 million in March 1975 and comprised 11 percent of the total U.S. population. More blacks are moving to the South, and fewer blacks are leaving the South. The 11 million persons of Spanish origin accounted for 5 percent of the population in 1975.

Household and Family Characteristics

The characteristics of households and families in the United States have been undergoing substantial change in recent years. For

example, nearly three-fourths of all households in 1960 included a head and spouse, but by 1975 this figure had dropped to two-thirds. During this period, the proportion of households comprised of persons living alone or with nonrelatives and of families headed by women with no husband present increased.¹

Average household size has been steadily declining since the early 1960's when it had remained constant at about 3.33 persons for several years. In 1974, the average dropped below 3 persons for the first time—to 2.97 persons—and in 1975 declined further—to 2.94 persons. Between 1960 and 1975, family size decreased from 3.67 persons to 3.42 persons. Since 1960, the proportion of families with no own children under 18 years has increased and the proportion with three or more own children has declined.

The declining birthrate has contributed to the decrease in family size, and because most households contain families, also to the decrease in household size. One of the principal causes for the decline in household size has been the increase in the number of individuals living alone as one-person households. Between 1960 and 1975 the number of one-person households doubled from 7 million to 14 million; as a proportion of all households those with one person increased from 13 to 20 percent. Men and women under the age of 35 have accounted for nearly half of the growth in this type of household since 1970, reflecting the tendency for unmarried young persons to set up a household of their own. The interrelationship between average household size and average family size is such that as young adults

¹ A household consists of all the persons who occupy a housing unit including related family members and unrelated persons such as lodgers or employees who share the housing unit. A family refers to a group of two or more persons related by blood, marriage, or adoption and residing together. A household may contain more than one family, but some households—such as those consisting of a person living alone or with unrelated persons—do not contain a family.

leave families to establish nonfamily households the average size of both households and families becomes smaller.

High rates of divorce and separation and the tendency of young couples to delay childbearing have also contributed to the declining family size. In 1975, the number of divorces exceeded 1 million for the first time in U.S. history, whereas the number of marriages dropped to the lowest level since 1969.

The education of the family head has a relationship to the family size. The average size in 1975 for families where the head has completed at least 1 year of college was 3.55 persons compared with an average size of 4.42 persons for families where the head has completed 8 or fewer years of school. This inverse relationship between size of family and education of the head holds for both black and white families.

Money Income

Median family income rose 7 percent in 1974 to \$12,840. This increase, however, was less than the rise in prices, resulting in a net loss in real purchasing power. After adjusting for price increases the 1974 median income actually decreased by about 4 percent between 1973 and 1974. While the decline in real median income declined for all families in general, the income of families where the head worked full time year round (\$16,070 in 1974), kept pace with the increase in prices.

Both white and black families experienced a decline in real median income between 1973 and 1974. The median income of white families was \$13,360 and of black families, \$7,810. The decrease in real income was 4 percent for whites and 3 percent for blacks when expressed in constant dollars.

Of all persons 14 years old and over about 93 percent of the men and 71 percent of the

women received income in 1974. Among persons who received income in 1974 the median income for men was \$8,380 and for women \$3,080.

In March 1975, 13 percent of all families were headed by a female and 3 percent by a male with no spouse present. The 1974 median income of these families was \$6,400 and \$11,740, respectively. About 30 percent of all families headed by a female had incomes below \$4,000 in 1974 compared with 11 percent for male heads with no wife present and 6 percent for husband-wife families.

Median family income is highly correlated with the number of earners per family. The median income for families with three or more earners was \$20,460 in 1974; for families with two earners, \$14,750; and for families with one earner, \$10,960.

The number of poor persons in the United States declined by about 15 million during the 1960's, but the number in 1974 (24 million) was not significantly different from that in 1969. About 16 million white persons, 8 million black persons, and 3 million persons of Spanish origin (mostly white) were below the poverty level in 1974. These numbers represented 12 percent of all persons, 9 percent of white persons, 31 percent of black persons, and 23 percent of persons of Spanish origin.

Sources: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, Population Characteristics*, Household and Family Characteristics: March 1975, Series P-20, No. 291, February 1976; Population Profile of the United States: 1975, Series P-20, No. 292, March 1976. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, Consumer Income*, Money Income in 1974 of Families and Persons in the United States, Series P-60, No. 101, January 1976; Characteristics of the Population Below the Poverty Level: 1974, Series P-60, No. 102, January 1976.

FOOD SAFETY IN THE HOME¹

by Judith Jones and Jon Weimer
Economic Research Service

Federal and State inspection laws have been designed to assure the consumer that food products are wholesome and properly labeled, thus helping to guard against foodborne illness caused by bacteria or insanitary processing. Nevertheless, the incidence of foodborne illness continues to be of great concern. The U.S. Public Health Service reported 23,448 cases of microbial food poisoning in 1970.² Most food-related illnesses are probably not reported, however, and estimates of such illnesses range from 2 to 10 million cases per year. A sizable proportion of those that are reported have been traced to foods prepared or eaten in the home. The Economic Research Service of the USDA conducted a survey during summer of 1974 to evaluate consumer awareness of and attitudes toward food safety practices in the home with selected food items. This survey was conducted as an aid in planning consumer education programs on food safety and to identify those groups of people having the greatest need for food safety information. Data were collected from personal interviews with approximately 2,200 homemakers in the United States.

Two general types of information were sought from the homemaker: "behavioral"—what the homemaker actually does in the kitchen—and "awareness"—her opinions, ideas, and knowledge concerning specific food safety practices and principles. The interviewer asked the homemaker to think about the last time she cooked a specific food product, and then asked her a series of questions about her behavior in preparing that product. Questions were

asked about beef roast, pork roast, turkey, chicken, hamburger paties, and salad sandwiches—food products that are commonly incriminated as sources of food poisoning. The homemaker was then asked about her opinions and knowledge on a variety of food safety principles and issues.

Based on their answers to a select number of these "behavioral" and "awareness" questions, homemakers were grouped as to whether their behavior in preparing and storing food constitutes a high or low risk of spawning foodborne illness in the household. A household was considered to be "high risk" if the homemaker did one or more of the following:

- Cooked hamburgers rare.
- Left cooked meat and poultry at room temperature for more than 24 hours.
- Left poultry, egg, or fish salad sandwiches at room temperature for more than 2 hours.
- Kept meat or poultry leftovers in the refrigerator where the temperature was above 45° F.
- Stuffed a turkey a day or more in advance of roasting it.
- Cooked a turkey partially at one time and completed the cooking at another time.
- Stored leftover stuffing in a turkey.

The fact that households are designated as "high risk" for committing any of these behavioral practices does not mean, of course, that members of such households would inevitably suffer from foodborne illness. Rather, such households may be judged more vulnerable to an incidence of foodborne illness than they would be if none of these practices were followed. On the basis of these criteria, almost two-thirds (63 percent) of the households sampled would be classified as "high risk."

¹ Condensed from a paper presented at the annual Agricultural Outlook Conference, USDA, November 1975.

² "Foodborne Outbreaks—Annual Summary," 1970. U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, Atlanta, Ga. 30333.

The demographic profile revealed that older homemakers (65 and older), homemakers with grade school educations only, those from households with low incomes, and those residing in rural areas are less likely than corresponding subgroups to represent "high risk" households. Homemakers from these small and often low-income families are not as apt to serve a whole turkey or beef and pork roasts, therefore reducing the risk of foodborne illness.

Of the "high risk" homemakers, 66 percent were classified as such solely because they left cooked meat or salad sandwiches at room temperature for more than 2 hours. For this reason perhaps the main focus of future consumer education programs should be to warn homemakers of the danger inherent in holding susceptible foods at room temperature.

Homemakers were also grouped on their awareness of specific food safety facts. To be considered knowledgeable, a homemaker must be cognizant of the risk of cross-contamination and be concerned about leaving cooked meat at room temperature for over 2 hours. Seventy-eight percent of the homemakers sampled were classified "unaware" of important food safety principles because:

- They would not wash hands, utensils, and working surfaces with soap and water after cutting up fresh meat and before chopping vegetables to be eaten raw.
- They would be "not too concerned" or "not concerned at all" about cooked meat or poultry standing at room temperature for 2 to 3 hours.

Although the criteria for identifying a homemaker as "unaware" were not as comprehensive as, and thus not parallel with, the criteria for designating a homemaker as "high risk," it is possible to broadly classify each homemaker into one of four behavior/awareness categories:

Behavior	Awareness	
	Aware	Unaware
	<i>Percent</i>	
Low risk	9	28
High risk	13	50

Homemakers whose sound knowledge of food safety principles and concepts are reflected in their behavior in the kitchen constituted only 9 percent of the homemakers sampled. An additional 28 percent seemingly did the right thing without knowing why. It may be difficult to effect any change in the behavior of the 13 percent who are knowledgeable about food safety principles but who proceed to actually practice unsafe procedures. An education program should be most effective for the largest group—50 percent—who are not aware of certain food safety principles and subject their families to increased risk.

Since there is a need to inform the homemaker on how to improve safety in storing, handling, and preparing foods, respondents were asked what they thought was the *one* best way to get this kind of information to them. Television spots received the most votes—approximately 26 percent of the homemakers cited TV as the preferred manner to get food safety information communicated to them. Food labels were cited by an additional 24 percent of the homemakers. Radio spots were cited by only 3 percent.

For additional information on food safety see "Keeping Food Safe to Eat," Home and Garden Bulletin No. 162. A single free copy is available from Office of Communication, U.S. Department of Agriculture, Washington, D.C. 20250.

SOCIAL AND ECONOMIC CHARACTERISTICS OF THE OLDER POPULATION 1974

Since the turn of the century, the older population has grown rapidly as a proportion of the total population. In 1974, persons 65 years and over numbered 22 million persons and made up 10 percent of the total population. In 1900, they constituted only 4 percent.

The social and economic characteristics of the older population often differ from the total population. For example:

- Older persons are more likely to fall below the low-income level (18.6 percent compared with 11.9 percent in 1972).
- Older persons suffer fewer injuries than the total population, but are more likely to have a limitation of activity because of a health or physical condition.
- A higher percentage of the older population register to vote (76 percent compared with 62 percent) and, having registered, are also more likely to vote (64 percent compared with 45 percent).
- A greater percentage of older persons live in owner-occupied homes and a smaller percentage live in renter-occupied homes.
- Older persons change residence less frequently.

The employment patterns of persons over 65 years reflect the tendency towards early retirement. Since 1940, the employment rate of older persons has declined from 24 percent to 14 percent. Of older persons who were employed in 1974, the highest percentage were working in white-collar occupations. Older workers with more education were more likely to stay in the work force longer than those with less education.

Older persons tend to live in metropolitan areas in small groups and with relatives. Most older men are heads of households and 70 percent are married with a wife present. However, the most common situation for older women is widowhood. Of the 1 million elderly who live in institutions, 80 percent live in homes for the aged. Twice as many older women than men live in institutions.

Source: U.S. Department of Commerce, Bureau of the Census, *Social and Economic Characteristics of the Older Population 1974*. (Current Population Reports, Special Studies Series P-23, No. 57) Washington, D.C., 1975.

SOME NEW USDA PUBLICATIONS

(Please give your ZIP code in your return address when you order these.)

Single copies of the following are available free from the Office of Communication, U.S. Department of Agriculture, Washington, D.C. 20250:

- HOME HEATING—SYSTEMS, FUELS, CONTROLS. FB 2235. Revised May 1975.
- ROSES FOR THE HOME. G 25. Revised October 1975.
- BETTER LAWNS. G 51. Revised October 1975.
- SUBTERRANEAN TERMITES—THEIR PREVENTION AND CONTROL IN BUILDINGS. G 64. Revised July 1975.
- CONTROLLING HOUSEHOLD PESTS. G 96. Revised March 1976.

TIME USE: A MEASURE OF HOUSEHOLD PRODUCTION OF GOODS AND SERVICES

A monograph titled "Time Use: A Measure of Household Production of Family Goods and Services," by Kathryn E. Walker and Margaret E. Woods, has been published by the Center for the Family of the American Home Economics Association.

The monograph, which is designed as a reference tool, is based on data collected from 1,296 families in Syracuse, N.Y., in 1967-68 as part of a study at Cornell University. These data provide information on the amount of time spent on specific household tasks by men, women, and children in the United States.

The major part of the monograph is devoted to the presentation of detailed information on the total time used by all family members for all household work and for each separate household work activity. There is an extensive amount of descriptive data on each kind of household work in relation to family characteristics such as age of children, number of children, family type, employment status of the wife, education of the husband and wife, and

husband's hours of employment. Also included in the monograph are discussions on the need for and ways of measuring household production, previous studies of time spent on household work, and information on the methodology used in the 1967-68 study.

The study on which this monograph is based was supported, in part, by the U.S. Department of Agriculture. Several articles on the study have appeared previously in *FAMILY ECONOMICS REVIEW*.¹

The monograph is available for \$15.00 from the American Home Economics Association, 2010 Massachusetts Avenue NW., Washington, D.C. 20036.

¹ Walker, K. E., Time spent in household work by homemakers, *Family Economics Review*, pp. 5-6, September 1969; and Walker, K. E., Time used by husbands for household work, *Family Economics Review*, pp. 8-11, June 1970.

NEW YORK FAMILY BUDGET ANNUAL PRICE SURVEY

The Community Council of Greater New York has issued its "Annual Price Survey," that reflects budget costs in October 1975 for self-supporting families in New York City. The Survey, which is updated and published each year, gives cost data for the "Family Budget Standard" revised by the Community Council in 1970. The budget is an adaptation of the 1966 Bureau of Labor Statistics *City Worker's Family Budget* for a four-person family and the *Retired Couple's Budget*. It provides budget components such as food, clothing, medical care, and housing. The kinds of goods and services used to determine the cost of the budget

are typical of purchases made by families with moderate income.

The "Family Budget Standard" provides a basis for (1) assessing the economic status of the family, (2) counseling families on money management, and (3) determining either the eligibility of families for free social and health services or fees for these services based on ability to pay.

The "Annual Price Survey" is available for \$6, and the "Family Budget Standard" for \$4 from the Community Council of Greater New York, 225 Park Avenue South, New York, N.Y. 10003.

COST OF FOOD AT HOME

Cost of food at home estimated for food plans at four cost levels, June 1976, U.S. average ¹

Sex-age groups	Cost for 1 week				Cost for 1 month			
	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan
<i>Dollars</i>								
FAMILIES								
Family of 2: 2								
20-54 years	22.30	29.30	36.70	44.20	97.10	126.70	159.20	191.60
55-years and over	19.90	25.80	32.10	38.60	86.70	112.20	139.20	166.90
Family of 4:								
Couple, 20-54 years and children--								
1-2 and 3-5 years	31.60	41.10	51.30	61.70	137.60	178.00	222.40	267.50
6-8 and 9-11 years	38.30	49.70	62.40	75.10	166.00	215.30	270.30	325.20
INDIVIDUALS ³								
Child:								
7 months to 1 year	4.50	5.60	6.80	8.10	19.60	24.20	29.60	35.00
1-2 years	5.10	6.60	8.10	9.70	22.30	28.60	35.30	42.10
3-5 years	6.20	7.90	9.80	11.80	27.00	34.20	42.40	51.20
6-8 years	8.00	10.30	12.90	15.50	34.50	44.50	55.80	67.10
9-11 years	10.00	12.80	16.10	19.40	43.20	55.60	69.80	83.90
Male:								
12-14 years	10.70	13.70	17.10	20.60	46.20	59.30	74.30	89.30
15-19 years	11.70	15.10	19.00	22.90	50.80	65.50	82.10	99.00
20-54 years	11.20	14.70	18.60	22.50	48.70	63.80	80.60	97.40
55-years and over	9.90	12.90	16.10	19.40	43.10	55.90	69.60	83.90
Female:								
12-19 years	9.50	12.20	15.10	18.10	41.10	52.90	65.60	78.50
20-54 years	9.10	11.90	14.80	17.70	39.60	51.40	64.10	76.80
55 years and over	8.20	10.60	13.10	15.70	35.70	46.10	56.90	67.80
Pregnant	11.40	14.70	18.10	21.60	49.60	63.60	78.40	93.60
Nursing	12.20	15.60	19.40	23.20	52.70	67.60	84.00	100.30

¹ Assumes that food for all meals and snacks is purchased at the store and prepared at home. Estimates for each plan were computed from quantities of foods published in the Winter 1976 (thrifty plan) and Winter 1975 (low-cost, moderate-cost, and liberal plans) issues of *Family Economics Review*. The costs of the food plans were first estimated using prices paid in 1965-66 by households from USDA's Household Food Consumption Survey with food costs at four selected levels. These prices are updated by use of "Estimated Retail Food Prices by Cities" released monthly by the Bureau of Labor Statistics.

² 10 percent added for family size adjustment. See footnote 3.

³ The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person--add 20 percent; 2-person--add 10 percent; 3-person--add 5 percent; 5-or-6-person--subtract 5 percent; 7-or-more-person--subtract 10 percent.

CONSUMER PRICES

Consumer price index for urban wage earners and clerical workers

(1967 = 100)

Group	June 1976	May 1976	Apr. 1976	June 1975
All items	170.1	169.2	168.2	160.6
Food	180.9	180.0	179.2	174.4
Food at home	179.7	178.8	178.1	174.9
Food away from home	185.6	184.8	183.8	173.1
Housing	176.5	175.6	174.9	166.4
Shelter	178.2	177.3	176.6	169.4
Rent	144.4	143.8	143.2	136.9
Homeownership	190.7	189.6	188.9	181.4
Fuel and utilities	181.7	180.2	179.3	166.9
Fuel oil and coal	247.3	246.2	246.6	230.6
Gas and electricity ..	188.5	186.1	184.4	169.4
Household furnishings and operation	168.5	167.9	167.4	158.1
Apparel and upkeep	146.9	146.8	145.7	141.4
Men's and boys'	146.7	147.3	146.0	142.1
Women's and girls'	140.9	140.6	139.2	136.3
Footwear	149.5	149.6	149.0	143.8
Transportation	165.9	163.5	161.3	149.8
Private	165.0	162.5	160.1	149.3
Public	173.6	172.4	172.4	154.1
Health and recreation	162.8	162.1	161.4	153.2
Medical care	183.7	182.6	181.6	168.1
Personal care	159.8	158.9	158.3	150.3
Reading and recreation .	150.9	150.3	149.5	144.1
Other goods and services	153.2	152.9	152.5	147.3

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Index of prices paid by farmers for family living items

(1967 = 100)

Item	June 1976	May 1976	Apr. 1976	June 1975	May 1975	Apr. 1975
All items	175	174	174	166	164	163
Food	184	---	---	179	---	---
Clothing	---	185	---	---	174	---
Housing	177	176	176	167	167	166
Medical and health	183	182	181	167	166	165
Education, recreation, and other	153	152	152	147	146	146

Source: U.S. Department of Agriculture, Statistical Reporting Service.

Note: Housing includes: household operation, household furnishings, and building materials. These categories were previously given separately.

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